

Table S4: Impact of aging on genes down-regulated by microbiota.

				Effect of microbiota on	
CG NUMBER	GENE SYMBOL	GENE category	GENE FUNCTION	young guts	old guts
				Canton S	Canton S
				CR/AX	CR/AX
Young repressed genes					
CG8023	eIF4E-3	GENE EXPRESSION	eukaryotic initiation factor 4G binding	-1.41	-1.24
CG16834	lectin-33A	IMMUNE RESPONSE	galactose binding	-1.50	-1.03
CG1544	CG1544	METABOLISM/DIGESTION	oxoglutarate dehydrogenase (succinyl-transferring) activity	-1.31	-1.06
CG14205	CG14205	METABOLISM/DIGESTION	transferase activity, transferring acyl groups other than amino-acyl groups	-1.32	-1.09
CG13325	CG13325	METABOLISM/DIGESTION	transferase activity, transferring acyl groups other than amino-acyl groups	-1.39	1.12
CG3747	Eaat1	METABOLISM/DIGESTION	glutamate:sodium symporter activity	-1.33	-1.18
CG17636	CG17636	METABOLISM/DIGESTION	gamma-glutamyltransferase activity	-1.32	1.00
CG8358	CG8358	METABOLISM/DIGESTION	metalloendopeptidase activity	-1.37	-1.05
CG31777	CG31777	METABOLISM/DIGESTION	serine-type endopeptidase inhibitor activity	-1.31	-1.10
CG17167	CG17167	METABOLISM/DIGESTION	calcium, potassium:sodium antiporter activity	-1.31	-1.28
CG42269	CG42269	METABOLISM/DIGESTION	secondary active organic cation transmembrane transporter activity	-1.35	1.25
CG8846	Thor	SIGNALING	InR pathway	-1.38	1.11
CG17090	hipk	SIGNALING	Wnt pathway	-1.31	-1.04
CG12891	whd	STRESS RESPONSE	detoxification	-1.48	-1.01
CG9989	CG9989	UNKNOWN	-	-1.36	1.34
CG16904	CG16904	UNKNOWN	-	-1.32	-1.23
CG30008	CG30008	UNKNOWN	-	-1.32	-1.26
CG6749	CG6749	UNKNOWN	-	-1.35	-1.07
CG34040	CG34040	UNKNOWN	-	-1.40	-1.04
CG34040	CG34040	UNKNOWN	-	-1.40	-1.08
CG15213	CG15213	UNKNOWN	-	-1.43	-1.12
CG33337	CG33337	UNKNOWN	-	-1.54	-1.28
Young and old repressed genes					
CG6908	CG6908	GENE EXPRESSION	CHK kinase-like	-1.37	-1.76
CG6403	CG6403	GUT STRUCTURE	chitin binding	-1.31	-1.48
CG10154	CG10154	GUT STRUCTURE	chitin metabolic process	-1.49	-1.86
CG11218	Obp56d	GUT STRUCTURE	odorant binding	-1.55	-2.22
CG15533	aSMase	GUT STRUCTURE	sphingomyelin phosphodiesterase activity	-1.37	-1.60
CG9465	CG9465	METABOLISM/DIGESTION	alpha-mannosidase activity	-1.32	-1.83
CG7923	Fad2	METABOLISM/DIGESTION	fatty acid desaturase	-1.31	-1.49
CG17192	CG17192	METABOLISM/DIGESTION	triglyceride lipase activity	-1.34	-2.08
CG6296	CG6296	METABOLISM/DIGESTION	triglyceride lipase activity	-1.35	-1.68
CG31091	CG31091	METABOLISM/DIGESTION	triglyceride lipase activity	-1.38	-2.56
CG31089	CG31089	METABOLISM/DIGESTION	triglyceride lipase activity	-1.42	-2.29
CG32444	CG32444	METABOLISM/DIGESTION	aldose 1-epimerase activity	-1.36	-1.75
CG8808	Pdk	METABOLISM/DIGESTION	pyruvate dehydrogenase (acetyl-transferring) kinase activity	-1.31	-1.33
CG10182	CG10182	METABOLISM/DIGESTION	transferase activity, transferring acyl groups other than amino-acyl groups	-1.36	-1.70
CG6633	Ugt86Dd	METABOLISM/DIGESTION	glucuronosyltransferase activity	-1.46	-1.76
CG34451	CG34451	METABOLISM/DIGESTION	protein glycosylation	-1.32	-1.50
CG1082	alpha-Est4	METABOLISM/DIGESTION	carboxylesterase activity	-1.32	-1.58
CG11911	CG11911	METABOLISM/DIGESTION	serine-type endopeptidase activity	-1.33	-2.07
CG6898	Zip3	METABOLISM/DIGESTION	metal ion transmembrane transporter activity	-1.34	-1.40
CG31783	ninaD	METABOLISM/DIGESTION	scavenger receptor activity	-1.39	-2.57
CG4459	CG4459	METABOLISM/DIGESTION	-	-1.31	-1.31
CG9825	CG9825	METABOLISM/DIGESTION	high affinity inorganic phosphate:sodium symporter activity	-1.46	-1.41
CG14606	CG14606	METABOLISM/DIGESTION	hexose transporter	-1.58	-1.63
CG5973	CG5973	METABOLISM/DIGESTION	retinal binding	-1.42	-1.59
CG14694	CG14694	METABOLISM/DIGESTION	reduced folate carrier activity	-1.41	-1.83
CG32751	CG32751	METABOLISM/DIGESTION	pantetheine hydrolase activity	-1.42	-2.29
CG16752	SPR	SIGNALING	sex peptide pathway	-1.56	-2.07
CG16987	daw	SIGNALING	TGF pathway	-1.59	-1.49
CG3972	Cyp4g1	STRESS RESPONSE	Cytochrome P450	-1.66	-2.34
CG10833	Cyp28d1	STRESS RESPONSE	electron carrier activity	-1.33	-1.52
CG33503	Cyp12d1-d	STRESS RESPONSE	electron carrier activity	-1.35	-1.55
CG3540	Cyp4d14	STRESS RESPONSE	electron carrier activity	-1.36	-1.74
CG8523	Mdr50	STRESS RESPONSE	ATPase activity, coupled	-1.45	-1.82
CG4371	GstD7	STRESS RESPONSE	glutathione transferase activity	-1.31	-2.04
CG32407	CG32407	UNKNOWN	-	-1.40	-1.95
Old repressed genes					
CG7768	CG7768	GENE EXPRESSION	peptidyl-prolyl cis-trans isomerase activity	-1.15	-1.36
CG32284	CG32284	GUT STRUCTURE	chitin binding	-1.15	-1.31
CG17147	CG17147	GUT STRUCTURE	structural constituent of peritrophic membrane	-1.24	-1.83
CG6933	CG6933	GUT STRUCTURE	structural constituent of peritrophic membrane	1.16	-1.34
CG1165	LysS	IMMUNE RESPONSE	lysozyme activity	1.14	-1.35
CG9358	Phk-3	IMMUNE RESPONSE	protein serine/threonine kinase activity	1.29	-1.32
CG8577	PGRP-SC1a/b	IMMUNE RESPONSE	amidase activity	2.18	-1.40
CG31741	CG31741	IMMUNE RESPONSE	scavenger receptor activity	-1.15	-1.40
CG15918	Cda9	METABOLISM/DIGESTION	hydrolase activity, acting on carbon-nitrogen (but not peptide) bonds	-1.11	-1.50
CG18607	CG18607	METABOLISM/DIGESTION	Acyl-CoA N-acyltransferase	-1.06	-1.44
CG3902	CG3902	METABOLISM/DIGESTION	short-branched-chain-acyl-CoA dehydrogenase activity	-1.09	-1.40
CG11162	CG11162	METABOLISM/DIGESTION	C-4 methylsterol oxidase activity	-1.05	-1.59
CG9394	CG9394	METABOLISM/DIGESTION	glycerophosphodiester phosphodiesterase activity	-1.18	-1.52
CG12512	CG12512	METABOLISM/DIGESTION	long-chain fatty acid-CoA ligase activity	-1.16	-1.58
CG4501	bgm	METABOLISM/DIGESTION	long-chain fatty acid-CoA ligase activity	-1.11	-1.37
CG15534	CG15534	METABOLISM/DIGESTION	sphingomyelin phosphodiesterase activity	-1.28	-1.63
CG13478	shd	METABOLISM/DIGESTION	electron carrier activity	-1.13	-1.32
CG11129	Yp3	METABOLISM/DIGESTION	structural molecule activity	1.12	-1.35

CG31674	CG31674	METABOLISM/DIGESTION	glyoxylate reductase (NADP) activity	-1.09	-1.37
CG31075	CG31075	METABOLISM/DIGESTION	aldehyde dehydrogenase	-1.08	-1.45
CG30354	CG30354	METABOLISM/DIGESTION	ubiquinol-cytochrome-c reductase activity	-1.18	-1.39
CG1946	CG1946	METABOLISM/DIGESTION	transferase activity, transferring acyl groups other than amino-acyl groups	-1.12	-2.06
CG14219	CG14219	METABOLISM/DIGESTION	transferase activity, transferring acyl groups other than amino-acyl groups	-1.07	-1.44
CG5361	CG5361	METABOLISM/DIGESTION	alkaline phosphatase activity	-1.10	-1.39
CG8147	CG8147	METABOLISM/DIGESTION	alkaline phosphatase activity	-1.09	-1.35
CG17681	CG17681	METABOLISM/DIGESTION	N-acetyltransferase activity	-1.14	-1.41
CG13271	Ugt36Bb	METABOLISM/DIGESTION	glucuronosyltransferase activity	-1.06	-1.69
CG4302	CG4302	METABOLISM/DIGESTION	glucuronosyltransferase activity	-1.15	-1.39
CG15902	Ugt86Dj	METABOLISM/DIGESTION	glucuronosyltransferase activity	-1.25	-1.35
CG40305	FucTC	METABOLISM/DIGESTION	fucosyltransferase activity	-1.14	-1.51
CG4123	Mipp1	METABOLISM/DIGESTION	inositol or phosphatidylinositol phosphatase activity	-1.14	-1.57
CG11425	CG11425	METABOLISM/DIGESTION	phosphatidate phosphatase activity	1.05	-1.82
CG13813	CG13813	METABOLISM/DIGESTION	transferase activity, transferring phosphorus-containing groups	-1.05	-1.85
CG13659	CG13659	METABOLISM/DIGESTION	transferase activity, transferring phosphorus-containing groups	-1.08	-1.50
CG16898	CG16898	METABOLISM/DIGESTION	transferase activity, transferring phosphorus-containing groups	-1.17	-1.46
CG13658	CG13658	METABOLISM/DIGESTION	transferase activity, transferring phosphorus-containing groups	-1.19	-1.39
CG13360	CG13360	METABOLISM/DIGESTION	transferase activity, transferring phosphorus-containing groups	-1.18	-1.38
CG15093	CG15093	METABOLISM/DIGESTION	3-hydroxyisobutyrate dehydrogenase activity	1.03	-1.32
CG9512	CG9512	METABOLISM/DIGESTION	choline dehydrogenase activity	-1.13	-1.64
CG11236	CG11236	METABOLISM/DIGESTION	D-aspartate oxidase activity	-1.15	-1.64
CG9547	CG9547	METABOLISM/DIGESTION	glutaryl-CoA dehydrogenase activity.	-1.08	-1.34
CG3705	aay	METABOLISM/DIGESTION	phosphoserine phosphatase activity	-1.06	-1.54
CG8579	Jon44E	METABOLISM/DIGESTION	serine-type endopeptidase activity	-1.13	-2.52
CG6580	Jon65Aii	METABOLISM/DIGESTION	serine-type endopeptidase activity	-1.23	-1.61
CG1131	alpha-Est10	METABOLISM/DIGESTION	alpha esterase	1.02	-1.49
CG11034	CG11034	METABOLISM/DIGESTION	dipeptidyl-peptidase activity	-1.20	-1.33
CG7025	CG7025	METABOLISM/DIGESTION	metallocarboxypeptidase activity	-1.28	-1.89
CG15253	CG15253	METABOLISM/DIGESTION	metalloendopeptidase activity	-1.23	-1.54
CG10051	CG10051	METABOLISM/DIGESTION	peptidase activity	-1.25	-1.77
CG10062	CG10062	METABOLISM/DIGESTION	peptidase activity	-1.25	-1.47
CG9416	CG9416	METABOLISM/DIGESTION	peptidase M28	-1.21	-1.37
CG17475	CG17475	METABOLISM/DIGESTION	Peptidase S1/S6	-1.10	-1.47
CG34458	CG34458	METABOLISM/DIGESTION	Peptidase S1/S6	-1.22	-1.47
CG4053	CG4053	METABOLISM/DIGESTION	serine-type endopeptidase activity	-1.28	-1.75
CG31266	CG31266	METABOLISM/DIGESTION	serine-type endopeptidase activity	-1.26	-1.59
CG16996	CG16996	METABOLISM/DIGESTION	serine-type endopeptidase activity	-1.12	-1.56
CG31267	CG31267	METABOLISM/DIGESTION	serine-type endopeptidase activity	-1.09	-1.53
CG16997	CG16997	METABOLISM/DIGESTION	serine-type endopeptidase activity	1.08	-1.45
CG11842	CG11842	METABOLISM/DIGESTION	serine-type endopeptidase activity	-1.12	-1.37
CG8299	CG8299	METABOLISM/DIGESTION	serine-type endopeptidase activity	1.01	-1.35
CG15418	CG15418	METABOLISM/DIGESTION	endopeptidase inhibitor activity	-1.06	-1.33
CG12387	zetaTry	METABOLISM/DIGESTION	serine-type endopeptidase activity	-1.23	-1.77
CG6574	CG6574	METABOLISM/DIGESTION	reduced folate carrier activity	-1.19	-1.48
CG7642	ry	METABOLISM/DIGESTION	xanthine dehydrogenase activity	-1.15	-1.40
CG8745	CG8745	METABOLISM/DIGESTION	alanine-glyoxylate transaminase activity	-1.28	-1.82
CG4991	CG4991	METABOLISM/DIGESTION	amino acid transmembrane transporter activity	-1.21	-1.80
CG11128	slif	METABOLISM/DIGESTION	cationic amino acid transmembrane transporter activity	-1.09	-1.38
CG17119	CG17119	METABOLISM/DIGESTION	L-cystine transmembrane transporter activity	-1.15	-1.38
CG10806	Nha1	METABOLISM/DIGESTION	sodium:hydrogen antiporter activity	-1.14	-1.31
CG11340	CG11340	METABOLISM/DIGESTION	extracellular-glycine-gated chloride channel activity	-1.27	-1.53
CG9428	ZIP1	METABOLISM/DIGESTION	metal ion transmembrane transporter activity	-1.27	-1.67
CG5130	CG5130	METABOLISM/DIGESTION	zinc ion transmembrane transporter activity	-1.18	-1.50
CG9903	CG9903	METABOLISM/DIGESTION	bile acid:sodium symporter activity	-1.23	-1.46
CG16700	CG16700	METABOLISM/DIGESTION	gamma-aminobutyric acid:hydrogen symporter activity	-1.16	-1.87
CG5304	l(2)01810	METABOLISM/DIGESTION	high affinity inorganic phosphate:sodium symporter activity	-1.07	-1.58
CG8791	CG8791	METABOLISM/DIGESTION	high affinity inorganic phosphate:sodium symporter activity	-1.02	-1.56
CG9826	CG9826	METABOLISM/DIGESTION	high affinity inorganic phosphate:sodium symporter activity	-1.25	-1.56
CG8083	CG8083	METABOLISM/DIGESTION	nucleoside:sodium symporter activity	1.00	-1.31
CG7720	CG7720	METABOLISM/DIGESTION	sodium:iodide symporter activity	-1.20	-1.43
CG30272	CG30272	METABOLISM/DIGESTION	-	-1.09	-2.32
CG15096	CG15096	METABOLISM/DIGESTION	high affinity inorganic phosphate:sodium symporter activity	-1.10	-1.52
CG7912	CG7912	METABOLISM/DIGESTION	high affinity sulfate transmembrane transporter activity	-1.08	-1.62
CG5002	CG5002	METABOLISM/DIGESTION	high affinity sulfate transmembrane transporter activity	-1.20	-1.40
CG8468	CG8468	METABOLISM/DIGESTION	secondary active monocarboxylate transmembrane transporter activity	-1.01	-1.39
CG18327	CG18327	METABOLISM/DIGESTION	transmembrane transporter activity	-1.05	-1.31
CG31636	CG31636	METABOLISM/DIGESTION	transporter activity	-1.09	-1.60
CG32669	CG32669	METABOLISM/DIGESTION	transporter activity	-1.13	-1.57
CG32750	CG32750	METABOLISM/DIGESTION	panetheine hydrolase activity	-1.26	-1.67
CG33965	CG33965	METABOLISM/DIGESTION	vitamin E binding	-1.24	-1.52
CG31288	CG31288	SIGNALING	CHK kinase like	-1.09	-1.53
CG1600	CG1600	STRESS RESPONSE	Alcohol dehydrogenase	-1.09	-1.41
CG8345	Cyp6w1	STRESS RESPONSE	electron carrier activity	-1.29	-1.68
CG30489	Cyp12d1	STRESS RESPONSE	electron carrier activity	-1.28	-1.64
CG13279	Cyt-b5-r	STRESS RESPONSE	electron carrier activity	1.08	-1.44
CG9438	Cyp6a2	STRESS RESPONSE	electron carrier activity	-1.16	-1.33
CG15095	l(2)08717	STRESS RESPONSE	hypoxia	-1.29	-1.53
CG6835	CG6835	STRESS RESPONSE	glutathione synthetase	-1.16	-1.43
CG5164	GstE1	STRESS RESPONSE	-	1.07	-1.45
CG17533	GstE8	STRESS RESPONSE	glutathione transferase activity	-1.19	-1.68
CG4181	GstD2	STRESS RESPONSE	glutathione transferase activity	1.23	-1.56
CG10091	GstD9	STRESS RESPONSE	glutathione transferase activity	1.28	-1.31

CG11512	GstD4	STRESS RESPONSE	homology glutathione transferase activity	-1.13	-1.41
CG9027	CG9027	STRESS RESPONSE	superoxide dismutase activity	-1.15	-1.37
CG3348	CG3348	UNKNOWN	-	-1.15	-1.87
CG11889	CG11889	UNKNOWN	-	-1.12	-1.83
CG7390	smp-30	UNKNOWN	-	-1.23	-1.71
CG14033	CR14033	UNKNOWN	-	-1.07	-1.70
CG7966	CG7966	UNKNOWN	-	-1.18	-1.67
CG32364	CG32364	UNKNOWN	-	-1.03	-1.66
CG16723	CG16723	UNKNOWN	-	-1.26	-1.64
CG9396	CG9396	UNKNOWN	-	-1.21	-1.63
CG6834	CG6834	UNKNOWN	-	-1.28	-1.62
CG13004	CG13004	UNKNOWN	-	1.01	-1.61
CG10799	CG10799	UNKNOWN	-	-1.29	-1.57
CG11501	CG11501	UNKNOWN	-	-1.11	-1.55
CG18806	CG18806	UNKNOWN	-	-1.23	-1.54
CG30411	CG30411	UNKNOWN	-	-1.21	-1.48
CG15170	CG15170	UNKNOWN	-	-1.28	-1.47
CG3850	sug	UNKNOWN	-	-1.04	-1.46
CG32754	vanin-like	UNKNOWN	-	-1.10	-1.46
CG6034	CG6034	UNKNOWN	-	-1.16	-1.46
CG7582	CG7582	UNKNOWN	-	-1.20	-1.45
CG13936	CG13936	UNKNOWN	-	-1.06	-1.44
CG10550	CG10550	UNKNOWN	-	-1.17	-1.44
CG7191	CG7191	UNKNOWN	-	-1.25	-1.44
CG7968	CG7968	UNKNOWN	-	-1.18	-1.43
CG3568	CG3568	UNKNOWN	-	1.05	-1.42
CG31248	CG31248	UNKNOWN	-	-1.00	-1.42
CG34251	CG34251	UNKNOWN	-	-1.00	-1.39
CG10553	CG10553	UNKNOWN	-	-1.03	-1.39
CG40198	CG40198	UNKNOWN	-	1.14	-1.37
CG6337	CG6337	UNKNOWN	-	1.10	-1.36
CG31975	CG31975	UNKNOWN	-	-1.04	-1.36
CG8317	CG8317	UNKNOWN	-	1.31	-1.34
CG33510	CG33510	UNKNOWN	-	1.12	-1.33
CG15406	CG15406	UNKNOWN	-	1.11	-1.32
CG5326	CG5326	UNKNOWN	-	-1.23	-1.31
CG31041	CG31041	UNKNOWN	-	1.07	-1.31
CG13285	CG13285	UNKNOWN	-	1.02	-1.31
CG31259	CG31259	UNKNOWN	-	-1.22	-1.31
CG13607	CG13607	UNKNOWN	ATP binding	-1.01	-1.46
CG6839	CG6839	UNKNOWN	hydrolase activity	-1.18	-1.45

<-1.3
<-2.0
<-4.0
>1.3
>2
>4
>10